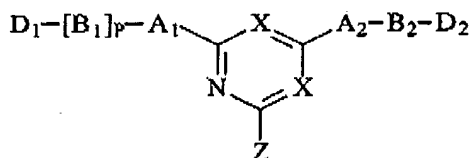


## In the Claims

**This listing of claims will replace all prior versions and listings of claims in this application.**

1 (original). An affinity ligand-matrix conjugate comprising the matrix and, conjugated thereto by the group Z, a ligand having the general formula (I):



wherein one X is N and the other X is N, CCl or CCN;

A<sub>1</sub> and A<sub>2</sub> are each independently O, S or N-R<sub>1</sub> and R<sub>1</sub> is H, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> hydroxyalkyl, benzyl or β-phenylethyl;

B<sub>1</sub> and B<sub>2</sub> are each independently an optionally substituted hydrocarbon linkage containing from 1 to 10 carbon atoms;

D<sub>1</sub> is H or a primary amino, secondary amino, tertiary amino, quaternary ammonium, imidazole, guanidine or amidino group; and

D<sub>2</sub> is a secondary amino, tertiary amino, quaternary ammonium, imidazole, guanidine or amidino group; or

B<sub>2</sub>-D<sub>2</sub> is -CHCOOH-(CH<sub>2</sub>)<sub>3-4</sub>-NH<sub>2</sub>; and

$p$  is 0 or 1;

with the proviso that, when each X is N, A<sub>1</sub> is NR<sub>1</sub>, A<sub>2</sub> is NH, B<sub>2</sub> is phenyl, D<sub>1</sub> is H, D<sub>2</sub> is amidino and p is zero, then R<sub>1</sub> is not methyl, β-phenylethyl or β-hydroxyethyl.

2 (previously presented). The conjugate according to claim 1, wherein A<sub>1</sub> and A<sub>2</sub> are each independently N-R<sub>1</sub> wherein R<sub>1</sub> is H, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> hydroxyalkyl, benzyl or β-phenylethyl.

3 (previously presented). The conjugate according to claim 2, wherein A<sub>1</sub> and A<sub>2</sub> are each NH.

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4 (previously presented). The conjugate according to claim 1, wherein  $B_1$  and  $B_2$  are each independently  $-\text{CHCOOH}-(\text{CH}_2)_{1-4}-$  or a divalent ethyl, propyl, 2-hydroxypropyl, butyl, pentyl, hexyl, phenyl, naphthyl or cyclohexyl group.

5 (previously presented). The conjugate according to claim 4, wherein  $B_1$  and  $B_2$  are each independently  $-\text{CHCOOH}-(\text{CH}_2)_{3-4}-$  or a divalent butyl, pentyl or phenyl group.

6 (previously presented). The conjugate according to claim 4, wherein  $B_1$  and  $B_2$  are each independently  $-\text{CHCOOH}-(\text{CH}_2)_{3-4}-$  and  $p$  is 1.

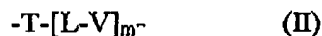
7 (previously presented). The conjugate according to claim 1, wherein  $D_1$  is H, amino, imidazolyl, guanidine, aminidino, trimethylammonium, triethylammonium, dimethylamino, diethylamino, methylamino or ethylamino.

8 (previously presented). The conjugate according to [any preceding] claim 1, wherein  $D_2$  is imidazolyl, guanidine, aminidino, trimethylammonium, triethylammonium, dimethylamino, diethylamino, methylamino or ethylamino.

9 (previously presented). The conjugate according to claim 1, wherein  $p$  is 1.

10 (previously presented). The conjugate according to claim 1, wherein each  $X$  is N.

11 (previously presented). The conjugate according to claim 1, wherein  $Z$  is



wherein  $T$  is O, S or  $\text{NR}_2$  and  $R_2$  is H or  $\text{C}_{1-6}$  alkyl;

$V$  is O, S,  $-\text{COO}-$ ,  $\text{CONH}$ ,  $\text{NHCO}$ ,  $-\text{PO}_3\text{H}-$ ,  $\text{NH-arylene-SO}_2-\text{CH}_2-\text{CH}_2-$  or  $\text{N-R}_3$  and  $R_3$  is H or  $\text{C}_{1-6}$  alkyl;

$L$  is an optionally substituted hydrocarbon linkage containing from 2 to 20 carbon atoms; and  $m$  is 0 or 1.

12 (previously presented). The conjugate according to claim 11, wherein  $R_2$  and  $R_3$  are each H.

13 (previously presented). The conjugate according to claim 11, wherein T is O or NH.

14 (previously presented). The conjugate according to claim 13, wherein T is NH.

15 (previously presented). The conjugate according to claim 1, wherein m is 1 and L is a divalent butyl, pentyl, hexyl, heptyl, octyl, nonyl, decyl or dodecyl group.

16 (previously presented). The conjugate according to claim 11, wherein m is 1 and V is O, -CONH-, -NHCO- or N- $R_3$ .

17 (previously presented). The conjugate according to claim 16, wherein V is O or NH.

18 (previously presented). The conjugate according to claim 17, wherein V is NH.

19 (previously presented). The conjugate according to claim 17, wherein Z-M (M being the matrix) is -NH-(CH<sub>2</sub>)<sub>4-10</sub>-NH-M.

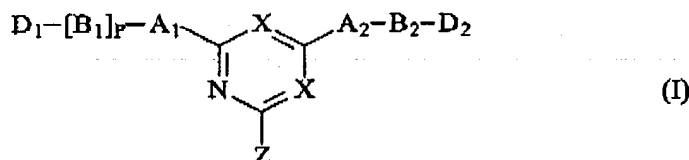
20 (previously presented). The conjugate according to claim 19, selected from any of formulae XXX to XXXX.

21 (previously presented). The conjugate according to claim 1, wherein the matrix is optionally tresyl-activated, sulphonyl chloride-activated, tosyl-activated, vinyl sulphone-activated or epoxy-activated.

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22 (previously presented). An affinity ligand of general formula (I):



wherein one X is N and the other X is N, CCl or CCN;

A<sub>1</sub> and A<sub>2</sub> are each independently O, S or N-R<sub>1</sub> and R<sub>1</sub> is H, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> hydroxyalkyl, benzyl or β-phenylethyl;

B<sub>1</sub> and B<sub>2</sub> are each independently an optionally substituted hydrocarbon linkage containing from 1 to 10 carbon atoms;

D<sub>1</sub> is H or a primary amino, secondary amino, tertiary amino, quaternary ammonium, imidazole, guanidine or amidino group; and

D<sub>2</sub> is a secondary amino, tertiary amino, quaternary ammonium, imidazole, guanidine or amidino group; or

B<sub>2</sub>-D<sub>2</sub> is -CHCOOH-(CH<sub>2</sub>)<sub>3-4</sub>-NH<sub>2</sub>; and

p is 0 or 1; and

wherein Z is a functional group capable of reaction with a solid matrix; and with the proviso that, when each X is N, A<sub>1</sub> is NR<sub>1</sub>, A<sub>2</sub> is NH, B<sub>2</sub> is phenyl, D<sub>1</sub> is H, D<sub>2</sub> is amidino and p is zero, then R<sub>1</sub> is not methyl, β-phenylethyl or β-hydroxyethyl.

23 (previously presented). The ligand according to claim 22, wherein the matrix is optionally tresyl-activated, sulphonyl chloride-activated, tosyl-activated, vinyl sulphone-activated or epoxy-activated.

24 (previously presented). The ligand according to claim 22, wherein Z is F, Cl, Br or I.

25 (previously presented). The ligand according to claim 22, wherein Z is -NH-(CH<sub>2</sub>)<sub>2-20</sub>-NH<sub>2</sub>.

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26 (previously presented). The ligand according to claim 22, wherein Z is  $-\text{NH}-(\text{CH}_2)_{2-20}-$   
 $(\text{CO})_{0-1}-\text{OH}$ .

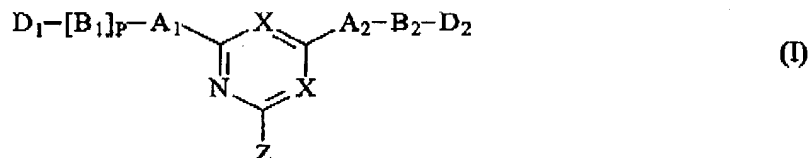
27 (previously presented). The ligand according to claim 22, wherein Z is  
 $-\text{T}-(\text{L}-\text{V})_m-\text{R}_{10}-\text{CR}_{11}=\text{CH}_2$   
wherein T is O, S or  $\text{NR}_2$  and  $\text{R}_2$  is H or  $\text{C}_{1-6}$  alkyl;  
V is O, S,  $-\text{COO}-$ ,  $\text{CONH}$ ,  $\text{NHCO}$ ,  $-\text{PO}_3\text{H}-$ ,  $\text{NH-arylene-SO}_2-\text{CH}_2-\text{CH}_2-$  or  $\text{N-R}_3$  and  $\text{R}_3$  is H  
or  $\text{C}_{1-6}$  alkyl;  
L is an optionally substituted hydrocarbon linkage containing from 2 to 20 carbon atoms;  
m is 0 or 1;  
 $\text{R}_{10}$  is  $\text{CO}$ ,  $\text{CH}_2$ ,  $\text{NH-CH}_2-$  or  $-\text{S-CH}_2-$ ; and  
 $\text{R}_{11}$  is H or  $\text{C}_{1-6}$  alkyl.

28 (previously presented). The ligand according to claim 24, wherein Z is Cl, and each X is  
N.

29 (previously presented). The ligand according to claim 28, wherein each X is N.

30 (previously presented). The ligand according to claim 22, selected from any of formulae  
XXVI to XXVI.

31 (currently amended). A method for the removal, separation, isolation, purification,  
characterization, identification or quantification of an endotoxin; wherein said method utilizes an  
affinity ligand or conjugate having the general formula (I):



wherein one X is N and the other X is N, CCl or CCN;

Z is a functional group capable of reaction with a solid matrix;

A<sub>1</sub> and A<sub>2</sub> are each independently O, S or N-R<sub>1</sub> and R<sub>1</sub> is H, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> hydroxyalkyl, benzyl or β-phenylethyl;

B<sub>1</sub> and B<sub>2</sub> are each independently an optionally substituted hydrocarbon linkage containing from 1 to 10 carbon atoms;

D<sub>1</sub> is H or a primary amino, secondary amino, tertiary amino, quaternary ammonium, imidazole, guanidine or amidino group; and

D<sub>2</sub> is a secondary amino, tertiary amino, quaternary ammonium, imidazole, guanidine or amidino group; or

B<sub>2</sub>-D<sub>2</sub> is -CHCOOH-(CH<sub>2</sub>)<sub>3-4</sub>-NH<sub>2</sub>; and

p is 0 or 1.

32 (previously presented). The method according to claim 31, for the removal of an endotoxin from water or an aqueous solution, body fluid, blood, plasma, solution of pharmaceutical products, protein or other compound of biological origin.

33 (previously presented). The method according to claim 32, which comprises using the conjugate for the extracorporeal removal of endotoxin from whole blood or plasma, prior to re-infusion into the donor or another recipient.

34 (previously presented). The method according to claim 31, wherein the endotoxin originates from a Gram-negative bacterium.

35 (previously presented). The method according to claim 31, in an endotoxin-containing solution or liquid is applied to the conjugate at a pH of 1.0 to 13.0.